

Attorney Docket No.: 1110/82821

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Filed: May 18, 2001

**IN THE CLAIMS**

Please amend the claims as follows:

Claims 1-8 (canceled).

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9. (presently amended) A heat treating method comprising consisting of the steps of distributing oxide precipitates in a silicon single crystal wafer, by a first step of maintaining a first heat treatment temperature for an initial entry of the silicon single crystal wafer up to 500°C, and a second step of maintaining a temperature ramping rate in a temperature range from the first heat treatment temperature to a second heat treatment temperature of 700°C-900°C, said ramping rate being 1°C/min or less, said first step being performed first after a wafer slicing process, said wafer comprising a surface region of up to several tens of  $\mu\text{m}$  deep from a wafer surface and a bulk region of several tens or more of  $\mu\text{m}$  deep from the wafer surface, said wafer having been prepared from a crystal free from grown-in defects and produced by a Czochralski method, said oxide precipitates being uniformly distributed in the bulk region by a first step of, said heat treating method consisting of by a first step of maintaining a first heat treatment temperature for an initial entry of the silicon single crystal wafer up to 500°C, and a second step of maintaining a temperature ramping rate in a temperature range from the first heat treatment temperature to a second heat treatment temperature of 700°C-900°C, said ramping rate being 1°C/min or less, said first step being performed first after a wafer slicing process.

10. (presently amended) A heat treating method comprising consisting of the steps of distributing oxide precipitates in a silicon single crystal wafer, by a first step of maintaining a first heat treatment temperature for an initial entry of the silicon single crystal wafer up to said 500°C, and a second step of maintaining a temperature ramping rate in a temperature range from the first heat treatment temperature to a second heat treatment temperature of 700°C-900°C, said ramping rate being 1°C/min or less, so as to make uniform the distribution of an oxide precipitate density of the silicon single crystal wafer in the wafer, said first step being performed first after a wafer slicing process, said wafer comprising a surface region of up to several tens of  $\mu\text{m}$  deep from a wafer surface

**IN THE CLAIMS**

Please amend the claims as follows:

Claims 1-8 (canceled).

9. (presently amended) A heat treating method ~~comprising~~ consisting of the steps of distributing oxide precipitates in a silicon single crystal wafer, by a first step of maintaining a first heat treatment temperature for an initial entry of the silicon single crystal wafer up to 500°C, and a second step of maintaining a temperature ramping rate in a temperature range from the first heat treatment temperature to a second heat treatment temperature of 700°C-900°C, said ramping rate being 1°C/min or less, said first step being performed first after a wafer slicing process, said wafer comprising a surface region of up to several tens of  $\mu\text{m}$  deep from a wafer surface and a bulk region of several tens or more of  $\mu\text{m}$  deep from the wafer surface, said wafer having been prepared from a crystal free from grown-in defects and produced by a Czochralski method, said oxide precipitates being uniformly distributed in the bulk region ~~by a first step of,~~ by a first step of maintaining a first heat treatment temperature for an initial entry of the silicon single crystal wafer up to 500°C, and a second step of maintaining a temperature ramping rate in a temperature range from the first heat treatment temperature to a second heat treatment temperature of 700°C-900°C, said ramping rate being 1°C/min or less, said first step being performed first after a wafer slicing process.

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10. (presently amended) A heat treating method ~~comprising~~ consisting of the steps of distributing oxide precipitates in a silicon single crystal wafer, by a first step of maintaining a first heat treatment temperature for an initial entry of the silicon single crystal wafer up to said 500°C, and a second step of maintaining a temperature ramping rate in a temperature range from the first heat treatment temperature to a second heat treatment temperature of 700°C-900°C, said ramping rate being 1°C/min or less, so as to make uniform the distribution of an oxide precipitate density of the silicon single crystal wafer in the wafer, said first step being performed first after a wafer slicing process, said wafer comprising a

surface region of up to several tens of  $\mu\text{m}$  deep from a wafer surface and a bulk region of several tens or more of  $\mu\text{m}$  deep from the wafer surface, said wafer having been prepared from a crystal free from grown-in defects and produced by a Czochralski method, said oxide precipitates being uniformly distributed in the bulk region ~~said heat treating method consisting of~~ by a first step of maintaining a first heat treatment temperature for an initial entry of the silicon single crystal wafer up to 500°C, and a second step of maintaining a temperature ramping rate in a temperature range from the first heat treatment temperature to a second heat treatment temperature of 700°C-900°C, said ramping rate being 1°C/min or less, so as to make uniform the distribution of an oxide precipitate density of the silicon single crystal wafer in the wafer, said first step being performed first after a wafer slicing process.

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~~11.~~ (presently amended) A heat treating method consisting of the steps of distributing oxide precipitates in a silicon single crystal wafer, by a first step of controlling a first heat treatment temperature for an initial entry of the silicon single crystal wafer to be a target of the heat treatment and a second step of controlling a temperature ramping rate from the heat treatment temperature in initial entry to a higher second heat treatment temperature and maintaining in a range of 700°C-900°C so as to make the distribution of an oxide precipitate density of the silicon single crystal wafer more uniform after heat treatment, said first step being performed first after a wafer slicing process. said wafer comprising a surface region of up to several tens of  $\mu\text{m}$  deep from a wafer surface and a bulk region of several tens or more of  $\mu\text{m}$  deep from the wafer surface, said wafer having been prepared from a crystal free from grown-in defects and produced by a Czochralski method, said oxide precipitates being uniformly distributed in the bulk region ~~consisting essentially of the central region by a first step of~~ said heat treating method consisting of by a first step of controlling a first heat treatment temperature for an initial entry of the silicon single crystal wafer to be a target of the heat treatment and a second step of controlling a temperature ramping rate from the heat treatment temperature at initial entry to a higher second heat treatment temperature and maintaining in a range of 700°C-900°C so as to make the

~~distribution of an oxide precipitate density of the silicon single crystal wafer more uniform after heat treatment, said first step being performed first after a wafer slicing process.~~

~~2~~ ~~12.~~ (original) The method according to Claim ~~9~~<sup>1</sup>, wherein the oxygen concentration of the perfect crystal is  $13 \times 10^{17}$  atoms/cm<sup>3</sup> or less.

~~3~~ ~~13.~~ (previously amended) A silicon single crystal wafer produced by the method according to Claim ~~12~~<sup>2</sup>.

Claims 14-23 (canceled).